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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/596,796	06/19/2000	Scott P. Tennican	50002.4USU1	3724

23552 7590 09/08/2003

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EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT	PAPER NUMBER
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2171

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/596,796

Applicant(s)

TENNICAN ET AL.

Examiner

Etienne P LeRoux

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 7, 8, 10, 11 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,035,326 issued to Miles et al (hereafter Miles '326).

**Claim 1:**

Miles '326 discloses:

A method for employing a plurality of data structures to optimize the retrieval of at least one data object over a network, comprising:

- (a) storing each data object in a data store, each data object in the data store being separately referenced in each of the plurality of data structures [Fig 1, 16]
- (b) in response to a request for one data object, automatically determining one of the plurality of data structures best suited to retrieve the one data object and employing the determined data structure to locate and retrieve one data object from the data store [col 3, line 60 through col 4, line 5]
- (c) in response to a request for a plurality of related data objects, automatically determining another one of the plurality of data structures best suited to retrieve the plurality of related data objects and employing the determined other one of the plurality of data structures to locate and retrieve the plurality of related data objects from the data store [col 4, lines 23-45],

Miles '326 discloses elements of claim 1 as noted above.

Miles '326 fails to disclose in response to a request to delete at least one data object, automatically deleting each reference to each deleted data object in the plurality of data structures such that each subsequent request for each deleted data object will be unsuccessful.

Official Notice is taken that in response to a request to delete at least one data object, automatically deleting each reference to each deleted data object in the plurality of data structures such that each subsequent request for each deleted data object will be unsuccessful is expected and well-known in the art.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of removing obsolete data from the database.

**Claim 2:**

Miles '326 discloses elements of claim 1 as noted above.

Miles '326 discloses: associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures [col 2, line 66 through col 3, line 6].

Miles '326 fails to disclose when at least one data object is deleted, employing each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structures such that each reference to the deleted data object is deleted.

Official Notice is taken that when at least one data object is deleted, employing each parent object associated with each deleted data object to identify each reference for the deleted

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data object in the plurality of data structures such that each reference to the deleted data object is deleted is well-known and expected in the art.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of removing obsolete data from the database.

**Claims 3 and 8:**

Miles '326 discloses wherein the plurality of data objects have at least one related characteristic, including port, IP address and type [col 1, lines 21-25].

**Claim 4:**

Miles '326 discloses wherein the plurality of data structures include List, Hash and Trie [col 3, lines 38-47].

**Claim 7:**

Miles '326 discloses identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object [col 3, line 60 through col 4, line 4].

**Claim 10:**

Examiner notes that in Miles '326 wherein each "segment is represented by at least one bit is inherent."

**Claim 11:**

Miles '326 discloses a relational database [Fig 2]

**Claims 17, 21 and 22:**

Miles '326 discloses enabling a server array controller [Fig 1] to store each data object in a data store, each data object in the data store being separately referenced in each of the plurality

of data structures, when one data object is requested by a network device, enabling the server array controller to automatically choose one of the plurality of data structures best suited to fulfill the request and retrieve the location of the one data object on at least one server [col 3, lines 38-46, and col 4, lines 23-60],

Miles '326 discloses the elements of claims 17, 21 and 22 as noted above.

Miles '326 fails to disclose when a plurality of related data objects are requested by the network device, enabling the server array controller to automatically choose another one of the plurality of data structures best suited to retrieve the location of the plurality of related data objects on at least one server.

Official Notice is taken in view of the teachings of Miles '326 that when a plurality of related data objects are requested by the network device, enabling the server array controller to automatically choose another one of the plurality of data structures best suited to retrieve the location of the plurality of related data objects on at least one server is well-known and expected in the art.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of performing multiple searches.

Miles '326 discloses the elements of claims 17, 21 and 22 as noted above.

Miles '326 fails to disclose in response to a request to delete at least one data object by the network device, enabling the server array controller to automatically delete each reference to each deleted data object in the plurality of data structures that each subsequent request for each deleted data object will be unsuccessful.

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Official Notice is taken that in response to a request to delete at least one data object by the network device, enabling the server array controller to automatically delete each reference to each deleted data object in the plurality of data structures that each subsequent request for each deleted data object will be unsuccessful is well-known and expected in the art.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of deleting obsolete data from the database.

**Claim 18:**

Miles '326 discloses enabling the server array controller to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures [col 2, line 66 through col 3, line 7]

Miles '326 discloses the elements of claim 17 as noted above.

Miles '326 fails to disclose when at least one data object is deleted, enabling the server array controller to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structures such that each reference to the deleted data object is deleted.

Official Notice is taken that when at least one data object is deleted, enabling the server array controller to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structures such that each reference to the deleted data object is deleted is well-known and expected in the art.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of removing obsolete data from the database.

**Claim 19:**

Miles '326 discloses wherein the plurality of data structures include List, Hash and Trie [col 3, lines 38-47].

**Claim 20:**

Miles '326 discloses wherein the network device includes, router, client, cache, firewall and another server array controller [Fig 1]

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miles '326 in view of US Pat No 5,528,701 issued to Aref (hereafter Aref '701).

**Claim 5:**

Miles '326 discloses the elements of claims 1 and 4 as above.

Miles '326 fails to disclose wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved.

Aref '701 discloses wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved [Fig 2].



It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miles '326 to include wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved as taught by Aref '701.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of partitioning a plurality of nodes into a plurality of levels to match input data representing a continuous combination of input objects [abstract].

**Claim 6:**

Examiner notes that "automatically enabling the member object to identify a new data object that is added to the sub-tree below the reference to the collector object" is inherent in Miles '326.

The ordinarily skilled artisan would have been motivated to include automatically enabling the member object to identify a new data object that is added to the sub-tree below the reference to the collector object for the purpose of being able to update the Trie table.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miles '326 and further in view of US Pat No 6,212,184 issued to Venkatachary et al (hereafter Venkatachary '184).

**Claim 9:**

Miles '326 discloses the elements of claims 1, 4 and 7 as noted above.

Miles '326 fails to disclose wherein the key represents a port.

Venkatachary '184 discloses wherein the key represents a port [abstract].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miles '326 to include wherein the key represents a port as taught by Venkatachary '184.

The ordinarily skilled artisan would have been motivated to modify Miles '326 for the purpose of finding the lowest cost routing [abstract].

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miles '326 in view of US Pat No. 6,304,879 issued to Sobeski et al (hereafter Sobeski '879).

**Claim 12:**

Miles '326 discloses the elements of claim 1 as noted above.

Miles '326 fails to disclose the data object is a container.

Sobeski '879 discloses the data object is a container [abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miles '326 to include the data object is a container as taught by Sobeski '879.

The ordinarily skilled artisan would have been motivated to modify Miles '326 as above for the purpose of improving the invention by providing dynamic data caching [abstract].

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6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miles '326 in view of Pub No US 2002/0194167 issued to Bakalash et al (hereafter Bakalash '167).

**Claim 13:**

Miles '326 discloses the elements of claims 1, 7 and 11 as noted above.

Miles '326 fails to disclose the data store is a data warehouse.

Bakalash '167 discloses the data store is a data warehouse [abstract]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miles '326 to include the data store is a data warehouse as taught by Bakalash '167.

The ordinarily skilled artisan would have been motivated to modify Miles '326 As above for the purpose of supporting on-line analytical processing operations to realize an improved informational database [abstract].

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pub No US 2002/0083031 issued to De Varax (hereafter De Varax '031).

**Claim 14:**

De Varax '031 discloses:

In a client-server operating environment, a method for employing a plurality of data structures to optimize the retrieval of at least one data object over a network for any one of a plurality of applications running in the client-server operating environment, comprising the acts of: (a) enabling a server to store each data object in a data store, each data object in the data store being separately referenced in each of the plurality of data structures: (b) when one data

object is requested by a client, enabling the server to automatically choose one of the plurality of data structures best suited to fulfill the request and retrieve the one data object for the client, (c) when a plurality of related data objects are requested by the client, enabling the server to automatically choose another one of the plurality of data structures best suited to locate and retrieve the plurality of related data objects for the client [abstract]

De Varax '031 discloses the elements of claim 14 as noted above.

De Varax '031 fails to disclose in response to a request to delete at least one data object from the client, enabling the server to automatically delete each reference to each deleted data object in the plurality of data structures such that each subsequent request for each deleted data object will be unsuccessful.

Official Notice is taken that in response to a request to delete at least one data object from the client, enabling the server to automatically delete each reference to each deleted data object in the plurality of data structures such that each subsequent request for each deleted data object will be unsuccessful is expected and well-known in the art.

The ordinarily skilled artisan would have been motivated to modify De Varax '031 as above for the purpose of deleting obsolete data from the server database.

8. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Varax '031 in view of Miles '326.

**Claim 15:**

De Varax '031 discloses the elements of claim 14 as noted above.

De Varax '031 fails to disclose enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures.

Miles '326 discloses enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures [col 2, line 66 through col 3 line 7]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify De Varax '031 to include enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures as taught by Miles '326.

The ordinarily skilled artisan would have been motivated to modify De Varax '031 as above for the purpose of improving the invention by providing a messaging system operating in a multi-protocol environment [col 2, line 34].

Furthermore, De Varax '031 fails to disclose when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structures such that each reference to the deleted data object is deleted.

Official Notice is taken that when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structures such that each reference to the deleted data object is deleted is well-known and expected in the art.

The ordinarily skilled artisan would have been motivated to modify De Varax as above for the purpose of removing obsolete data from the database.

**Claim 16:**

De Varax '031 discloses the elements of claim 14 as noted above.

De Varax '031 fails to disclose enabling the server to identify a key in the request for the data object, enabling the server to divide the key into segments, and enabling the server to employ each segment to search the trie data structure and locate the requested data object

Miles '326 discloses enabling the server to identify a key in the request for the data object, enabling the server to divide the key into segments, and enabling the server to employ each segment to search the trie data structure and locate the requested data object [col 1, line 62 through col 2, line 8].

It would have been obvious to the ordinarily skilled artisan at the time the invention as made to modify De Varax '031 to include enabling the server to identify a key in the request for the data object, enabling the server to divide the key into segments, and enabling the server to employ each segment to search the trie data structure and locate the requested data object as taught by Miles '326.

The ordinarily skilled artisan would have been motivated to modify De Varax '031 as above for the purpose of improving the invention by providing a system that efficiently and quickly maps messaging addresses across multiple protocols [col 1, lines 53-55].

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620.

The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Etienne LeRoux

August 29, 2003



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